USSR

UDC: 537.312.62

ENMAN, V. K., KRAINSKIY, I. S., BARANOV, I. A., KONOVALOV, N. T.

Production and Investigation of Tape with Nb_3Sn Coating"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 63-68 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D548 [reviewed])

Translation: An installation is developed for continuous heat treatment of niobium tape in a tin bath. On this installation a study was made of the influence of temperature and rate of the process on the critical parameters of the tape. It is concluded that it is advisable to use additional heat treatment of tape having a coating of Nb_3Sn + Sn. Two illustrations, bibliography of four titles.

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USSR UDC: 537.312.62

KRAINSKIY, I. S., SHCHEGOLEV, I. F., RUBTSOV, V. A.

"A Solenoid With Compensating Coils With H_c of 52,000 Oe/cm"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 177-183 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D568 [resume])

Translation: The paper presents the results of development and experimental verification of a superconducting solenoid with highly homogeneous magnetic field. Various types of superconductor-superconductor contacts are studied. The minimum resistance of clamped contacts is $6.9 \cdot 10^{-9}$ Ω. A superconductive welded contact is made with high critical parameters. The stability of the magnetic field of a solenoid with welded contact is better than $4 \cdot 10^{-8}$ over an 8-hour period. Magnetic field homogeneity is $3.6 \cdot 10^{-7}$ in a specimen 4 mm in diameter and 4 mm long. Three illustrations, two tables, bibliography of four titles.

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USSR UDC: 537.312.62

KRAINSKIY, I. S., MAZOKHIN, S. S., SOKOLOV, V. I., SHCHEGOLEV, I. F., ENMAN, V. K.

"A Vacuum Installation for Making the Compound Nb_3Sn by a Continuous Method With Diffusion of Tin Into a Niobium Base From a Melt"

V sb. Probl. sverkhprovodyashchikh materialov (Problems of Superconducting Materials--collection of works), Moscow, "Nauka", 1970, pp 124-130 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D540)

Translation: The article contains a constructive description of an installation designed for continuous production of a thin layer of Nb_3Sn compound on niobium stock (band, wire, cable) of considerable length as it is drawn through a bath with a melt of tin heated to 950-1050°C in a vacuum at a predetermined pulling rate. When the pulling rate is increased or the temperature of the molten tin is reduced, niobium stock covered with a thin layer of tin may be produced, the Nb_3Sn compound being produced by subsequent heat treatment. The installation provides a high vacuum, a wide range of pulling rates (0.72-570 m/hr) and controllable molten tin temperature, and can be used to study the effect of various factors on the critical characteristics of superconductors with Nb_3Sn compound. Critical characteristics are presented for the first experimental specimens of superconducting strip made on the installation. Four illustrations, one table, bibliography of four titles. Authors' abstract.

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USSR UDC 537.312.62+533.599

KRAINSKIY, I. S., MAZOKHIN, S. S., SOKOLOV, V. I., SHCHEGOLEV, I. F., and ENMAN, V. K.

"Vacuum Installation for Production of Nb_3Sn by Continuous Method by Diffusion of Tin in Niobium Base from Melt"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials — Collection of Works], Moscow, Nauka Press, 1970, pp 124-130

Translation: A constructive description is presented of an installation in which a continuous process of formation of a thin layer of the compound Nb_3Sn on a niobium profile (strip, wire, cord] of great length is performed by drawing through a bath of melted tin at 950-1,050°C in a vacuum at a predetermined drawing rate. If the drawing rate is increased or the bath temperature is decreased, the installation can be used to produce a niobium shape coated with a thin layer of tin without formation of the compound Nb_3Sn, which is formed upon later heat treatment. The installation, which can produce a high vacuum and can provide a wide range of speeds (0.72-570m/hr) and an adjustable tin melt temperature, allows the study of the influence of various factors on the critical characteristics of superconductors of the compound Nb_3Sn to be performed.

Critical characteristics of this first experimental specimens of superconducting strip produced on the installation are presented.

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USSR

UDC 669-172:539.2

KLEYN, G. A., MIKHAYLOV, S. M., KRAKHMALEV, V. A., and GRISHKOV, G. N.

"Substructure of Oriented Single Crystals of Molybdenum of Increased Size Produced by the Zone Growth Method"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 63-66

Translation: The substructure of monocrystalline bars of molybdenum 25 mm in diameter produced by the method of zone growth is studied. X-ray analysis using a narrow and broad beam is used to show that in the process of growth decrystallographic orientation of the single crystals is not changed. The substructure of these single crystals is homogeneous and in equilibrium, with the exception of the outer surface layers, in which the mosaic blocks are finer. Disorientation of the blocks of thick single crystals averages 10-40 min. The microhardness in the transverse cross section of the single crystals is constant in value and increases only slightly near the external surface of the single crystals. 4 Figures.

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USSR

UDC 669.172:541.12.036

KRAKHMALEV, V. A., and KLEYN, G. A.

"Influence of Low-Temperature Thermal Cycling on Changes in Dislocation Structure and Microhardness of Tungsten Single Crystals"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 125-129

Translation: The methods of dislocation etching, x-ray analysis, and microhardness are used to study the changes in crystalline structure of cylindrical tungsten single crystals occurring with low-temperature thermal cycling in the 288-673°K temperature interval.

It is demonstrated that nondiffusion processes of the dislocation type occur intensively, leading to local polygonization of the specimens at certain stages of fatigue. 3 Figures; 18 Bibliographic References.

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USSR

UDC: 389.0.009.01(4:I08):535.231.2.089.6

Krakhmal'nikova, G. A., Kirenkov, I. I.

"Standardization of the Black Body Models of the CEMA Countries at the Gold Point"

Moscow, Metrologiya, No. 8, 1972, pp. 21-27.

Abstract: The plan of work of the permanent CEMA commission for 1968-1970 included a theme on "standardization of the basic parameters of black bodies at the equilibrium temperature of solid and liquid gold." Based on analysis of results of measurements, the following conclusions can be drawn. 1) Differences in results of measurement of the gold point in laboratories participating in the work were slight. The use of identical black body models in all of these laboratories can have only an insignificant influence on the national high temperature scales. 2) The standardization work has supported exchanges of experience, mutual familiarization with methods of apparatus and has revealed the sources of the slight differences present. 3) Investigations in the area of theoretical and experimental determination of corrections to black body models should be continued. 4) Temperature scales should be standardized over a broader temperature range. 5) The question should be studied as to whether it is expedient to develop and create standard equipment for realization of the gold point in the CEMA countries.

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KRAKHOTKO, V.V.

mathematics

JPRS 56182

6 June 1972

CONTROLLABILITY OF LINEAR STABLE SYSTEMS

[Article by [illegible], [illegible] and [illegible], Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, USSR Academy of Medical Sciences, Moscow, Doklady Akademii Nauk SSSR, Russian, Vol 203, No 3, 1972, submitted 3 June 1971, pp [illegible]]

1. Let us study the control system

$$D_n(p)x(t) \quad Bx(t-h_1)+Cx(t-h_2)-\int_0^{h_3} H(s)x(t-s)\,ds+K_\beta(p)u(t) \qquad (1)$$

X is an n vector, u is an r vector, h_1, h_2, h_3 are positive numbers, $p = d/dt$, $D_n(p)=p^n+A_1p^{n-1}+\ldots+A_{n-1}p+A_n$, $K_\beta(p)=K_0p^\beta+K_1p^{\beta-1}+\ldots+K_{\beta-1}p+K_\beta$, $\beta<n$, $A_1, A_2, \ldots, A_n, B, C$ are constant n × n matrices, $K_0, K_1, \ldots, K_\beta$ are constant n × r matrices,

$$H(s)=\sum_{i=1}^{l}\sum_{j=0}^{m_i} H_{ij}\frac{s^j}{j!}\exp(a_is),$$

H_{ij} are constant n × n matrices, a_i, i = 1,...,l are constant numbers.

Let us fix the initial conditions

$$x_0(\cdot)=\begin{cases} x(\theta)=\varphi(\theta), & -\max\{h_i, i=1,2,3\}=-h\le\theta<0, \\ x^{(i)}(0)=x_0^i, & i=0,1,\ldots,n-1, \end{cases} \qquad (2)$$

where $\varphi(\theta)$ is a function continuous with $\dot\varphi(\theta)$. Each control u(t), $t \ge 0$ from class $C^{(\beta)}$ corresponds to a unique continuous solution x(t), $t \ge 0$, of the equation (1), satisfying conditions (2).

[I - USSR - J]

USSR

UDC 620.194.8

KRALASHOV, A. V., and PRYAKHIN, I. I., Kiev Institute of Civil Aviation Engineers

"Cyclic Strength of an Aluminum Alloy in Jet Fuel Oils at Different Temperatures"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 10, No 1, 1974, pp 24-27

Abstract: Aluminum alloy D16A-T (4.2% Cu, 1.6 Mg, 1.5 Mn, 0.3 Fe, and 0.5% Zn; tensile strength-42 dyne/mm^2, yield strength-30 dyne/mm^2, and elongation-16%) was tested for corrosion fatigue in jet fuels T-1, TS-1, and T-7. Alloy samples were tested in air at 20° C, and in each fuel at 20, 60, and 90° C under a cyclic stress of 90 cps for 10^6 cycles. Test results showed that the fatigue strength of D16A-T is less in the fuels than in air and decreases with increased temperature. At high stresses the corrosion - fatigue strength of the alloy at 60 and 90° C is almost independent of fuel grade, whereas at lower stresses there is a dependence on fuel grade. In all cases the fatigue strength of the alloy was highest in fuel T-7, followed by TS-1, and T-1. Five figures, one table, nine bibliographic references.

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USSR

UDC 547.26.119

GAMAYUROVA, V. S., KRALICHKINA, M. G., CHERNOKAL'SKIY, B. D., Kazan' Chemical Technological Institute imeni S. M. Kirov

"Synthesis of Aromatic Esters of Arsonic Acids"

Ivanovo, Izvestiya vysshikh uchebnykh zavedeniy, Khimiya i khimicheskaya tekhnologiya, Vol XV, No 7, 1972, pp 1023-1026

Abstract: A study was made of the possibility of synthesizing aromatic esters of arsonic acids. Direct esterification of these acids by phenols did not lead to the expected products, but transesterification of the dialkyl esters of arylarsonic acids by phenols in the presence of catalysts was successful:

$$RAs(O)(OAlk)_2+PhOH \rightleftarrows RAs(O)(OPh)_2+AlkOH.$$

The alkyl esters of the arsonic acids were obtained by the Kolitz-Hass method [Z. anorgan. und allgem. Chem., No 307, 304, 1961]. Transesterification of the dialkyl esters of the arylarsonic acids was performed in xylenes, which make the reaction possible at a comparatively high temperature and form azeotropes with the aliphatic alcohols. Sodium phenoxide and also perchloric acid, sulfuric acid and glacial acetic acid were used as catalysts. Glacial acetic acid was the best catalyst. The synthesized aromatic esters and some of their properties are tabulated the lowest representatives of the series of

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USSR

GAMAYUROVA, V. S., et al., Izvestiya vysshikh uchebnykh zavedeniy, Khimiya i khimicheskaya tekhnologiya, Vol XV, No 7, 1972, pp 1023-1026

compounds are high-boiling, viscous and very hygroscopic liquids. The crystalline esters were isolated with almost quantitative yield and are highly hygroscopic. The infrared spectrum taken for the diphenyl ester of n-tolylarsonic acid confirms its proposed structure.

Organometallic Compounds

USSR

UDC: 547.242

GATILOV, Yu. F., KOVYRZINA, V. P., KRALICHKINA, M. G., Kazan' Pedagogical Institute

"On the Question of Thermal Behavior of Quasiarsonium Salts"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1303-1305

Abstract: The authors isolate a series of quasiarsonium salts -- intermediate products of rearrangement of tertiary arsine sulfides -- and show that when they are heated they are readily converted to esters of the corresponding thioarsinous acids. It is found that quasiarsonium salts behave differently when heated, depending on their melting point. An analysis of the results of the thermal study confirms the previously assumed S_N2 mechanism of rearrangement.

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USSR

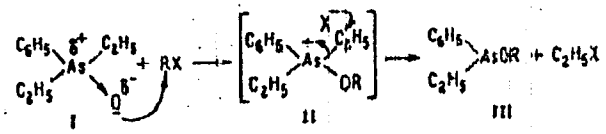
UDC 547.242

GATILOV, Yu. F., and KRALICHKINA, M. G.

"Rearrangement of Tertiary Arsine Oxides. I. Rearrangement of Diethylphenylarsine Oxide Under the Influence of Alkyl Halides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 538-540

Abstract: An investigation of the reaction of diethylphenylarsine oxide with alkyl halides led to isolation of ethylphenylarsinous acid esters. Data on some of these esters are tabulated. The yield reaches 75%, which shows that the rearrangement is suitable for industrial synthesis of symmetric and asymmetric esters of trivalent arsenic. The following reaction scheme is suggested:



I II III

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USSR

GATILOV, Yu. F., and KRALICHKINA, M. G., Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 538-540

The conversion of diethylphenylarsine oxide (I) to quasiarsonium salt (II) is accompanied by rearrangement of the electron cloud at the arsenic atom. The resultant positive charge on the arsenic atom is propagated by the induction effect to the α-carbon atom of the ethyl radical, which leads to considerable weakening of the As-C bond, and breaking of this bond leads to formation of the corresponding ester (III).

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USSR

UDC 669.24-172

KRALINA, A. A., and SAZONOVA, V. A., Sverdlovsk

"The Connection Between Thermal Crystallization Conditions and Micropictures of Etched Nickel Single Crystals"

Moscow, Izvestiya Akademii Nauk USSR, Metally, No 5, Sep-Oct 72, pp 111-116

Abstract: A study was made of etched Ni microstructures and their connection with crystallization conditions and the type of roentgenographically observed single-crystal substructures. The degree of perfection of the crystalline lattice was rated on the basis of X-ray micro- and macrotopography in response to the type of substructure, the magnitude of blocks, and the angle of disorientation. A broad series of etching agents was tested in order to expose the output points of dislocations. The investigated Ni single crystals were grown by the Chokhral'skiy method in the interval of 0.5-3.2 mm/min pull rates at a rotational velocity of 50 rpm. The results are discussed by reference to experimental data, the topogram of the Ni single crystal, and the distributions of etch pits. The crystals showed an admixtured helicoidal surface produced by asymmetry of the thermal field on the crystallization front. The effect of this asymmetry on the quality of the crystalline structure is discussed. The relation is shown between oscillations of the growing rate and the diameter of crystals, depending on the instability of melting conditions

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USSR

KRALINA, A. A. and SAZONOVA, V. A., Izvestiya Akademii Nauk USSR, Metally, No 5, Sep-Oct 72, pp 111-116

with duplicated local distribution of the density of dislocations. Three figures, one formula, two tables, seven bibliographic references.

2/2

USSR

UDC: 669.24

KRALINA, A. A., SMIRNOV, L. V., SAZONOVA, V. A. and ZAYTSEV, G. I., Institute of Physics of Metals, Ural Scientific Center, Academy of Sciences SSSR

"Substructure of Nickel Monocrystals Grown by the Czochralski Process"

Sverdlovsk, Fizika metallov i metallovedeniye, Vol 33, No 1, Jan 72, pp 113-120

Abstract: The study concerns the substracture of nickel single crystals grown by the Czochralski method at 0.5-3.2 mm/min growth rates using seed crystals of various crystallographic orientations. X-ray diffraction analysis indicates three basic types of substructures: a) striped substructures with inclined boundaries along the direction of growth; b) branched substructures without explicit boundaries; c) substructures with boundaries twisted around the specimen's axis. It is shown that the formation of structures of one type or another depends on growth conditions, the basic factor being the crystallographic orientation of the direction of growth. The three types of substructures and their occurrence in crystals with specific types of crystal axis orientations are discussed. Analysis of

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KRALINA, A. A., et al, Fizika metallov i metallovedeniye, Vol 33, No 1, Jan 72, pp 113-120

the etching patterns on both longitudinal and transverse cross sections of the monocrystals indicates the marked effect of the thermal conditions at the crystallization boundaries on the type of substructure formation in the process of growth. (8 illustrations, 10 bibliographic references).

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KRAMARENKO, I.B.

Industrial Hygiene

SO: JPRS 55015
25 Jan 72

UDC: 614.1:313.13]:677.463.021.5

MORBIDITY INVOLVING TEMPORARY DISABILITY AMONG YOUNG WOMEN SPINNERS IN THE VISCOSE INDUSTRY

(Industrial Hygiene)

[Article by I.B. Kramarenko, I.M. Yakovleva, Yu.A. Litvinova, F.I. Grishko; Kiev Scientific Research Institute of Industrial Hygiene and Occupational Diseases; Moscow, Sovetskaya Zdravookhraneniye, Russian, No 12, 1971, submitted 14 June 1971, pp 59-62]

The manpower for the chemical industry is annually augmented with qualified workers largely referable to young people ranging in age from 18 to 20 years who have completed a vocational technical school. At this age, as shown by our studies, as well as those of V.A. Domkin, Yu.D. Kalashnikov, and others, there may be increased sensitivity to a number of chemicals encountered in modern industry.

In the spinning mills of the viscose industry, where young men and women, starting at the age of 18 years, learn the trade and work, it is observed that diverse industrial factors exert a combined influence. Among them the predominant role belongs to carbon disulfide, a toxic substance that affects the organism even in relatively low concentrations. One of the early manifestations is a rise in level of nonspecific diseases (B.A. Saf'yan and [illegible], [illegible], L.M. Kashkin, N.V. Petrov, and others).

Our objectives included investigation of morbidity involving temporary disability among young workers during the first few years of contact with the industrial environment, determination of long term results of such contact, and of the correlation between the indices studied and working conditions. For this purpose a comparative analysis was made of morbidity involving temporary disability among young girls studying to be spinners in the viscose industry, and their peers going through apprenticeship in other than chemical enterprises (at the same age), training period, living conditions, as well as young spinners during their first years on the job in the viscose industry under diverse working conditions (some worked in mills where the carbon disulfide concentration in the buildings ranged from 10-30 mg/cubic meter, and others where the concentration of the same substance did not exceed 10 mg/cubic meter). Finally, a study was made of the morbidity rate among spinners in the viscose industry of different ages, i.e. at the age of 18-20 and 25-30 years, and in each of these groups, tenure constituted 10-15 years at the time

USSR UDC 621.438:662.995.001.24

DEDKOV, G. V., DEDUSENKO, YU. M., and KRAMARENKO, L. A.

"Optimal Distribution of the Heat-Exchange Surface for the Regenerator and the Coolers in a Gas-Turbine Power Plant"

Khar'kov, In-t Probl. Mashinostr. AN USSR (Institute of Problems of Machine Building, Academy of Sciences, Ukrainian SSR), 1974, 111., Bibliography. Manuscript deposited at VINITI (All-Union Institute of Scientific and Technical Information), No 4795-72. Deposited 26 September, 1972 (from Referativnyy Zhurnal—Turbostroyeniye, No 1, 1973, Abstract No 1.49.127 Dep)

Translation: A method is presented for finding the optimal distribution of the relative resistance and theheat-exchange surface for the regenerator and the coolers in gas-turbine power-plant systems. According to this method, the parameters of the regenerator are found with account taken of the optimal relationship of the average stream velocities, and the parameters of the coolers are found with account taken of the optimal velocity distribution of the gas stream and the flow rates of the cooling liquid for each of the coolers. An illustrative example is provided for the regenerative system of a gas-turbine power plant with four coolers. 3 figures.

1/1

Acc. Nr. AP0048449 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code 4R0449

105570a Optical and photoelectric properties of thin layers of orthorhombic lead oxide. Kramarenko, N. L.; Milolubovskii, V. K.; Miroshnichenko, L. M. (Fiz.-Tekh. Inst. Nizkikh Temp., Kharkov, USSR). *Fiz. Tekh. Poluprov.* 1970, 4(1), 227 (Russ). The spectral dependence of the absorption coeff. K of thin PbO layers was investigated in the energy range 1.7–5.5 eV, at 85–500°K, for K values of 5×10^2–5×10^5 cm^{-1}. The absorption spectrum consists of 3 parts: the 1st, corresponding to straight permitted transitions; the 2nd, approximated by straight lines in the $K^{1/2}(\hbar\omega)$ coordinates; and the 3rd, with $\hbar\omega < 27$ eV, in single crystals. Peculiarities of the spectral dependence of the photocond. (which is sensitive to annealing of the specimen) are discussed. Photoelec. inactive absorption is absent. The obsd. absorption in the tails is related to a transition between "quasi-surface" states (at the grain boundaries) and permitted zones. Alexandre Fucs

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REEL/FRAME 19800157

18 N

KRAMARENKO, O. L.

AA0051861 UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

242497 BINARY SUMMATOR suitable for a digital computer has been designed and contains two resistors 1 and 2, the emitters of which are connected through a common resistor 3 to the displacement source - E2. The transistor base 2 is earthed and base of transistor 1 through resistor 4 is connected to the displacement source and through diode 5 to the entry of circuit 6 (through resistor 7).
21.12.67 as 1205608/18-24.A.P.BUDENNYI et al.
(5.9.59) Bul 15/25.4.69. Class 42m3. Int.Cl.G 06f.

AUTHORS: Budennyy, A. P.; Lutskiy, V. A.; Kontarev, V. Ya.; Nazarov, S. I.; Kramarenko, O. L.; Shishkevich, A.A.

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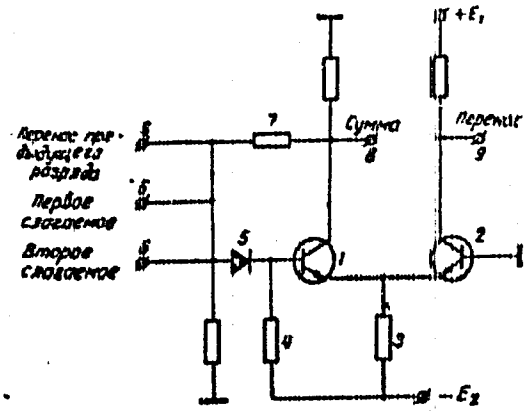

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19820297

1/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--USE OF A METHOD OF ACCELERATED TESTING WITH A PROGRESSIVE LOAD FOR THE DETERMINATION OF STATISTICAL FATIGUE CHARACTERISTICS -U-

AUTHOR-(02)-KRAMARENKO, O.YU., BALAKOVSKY, O.B.

K

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, JAN. 1970, (1), 36-41

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--GRAPHIC TECHNIQUE, CAST IRON, STEEL, TEST METHOD, FATIGUE STRENGTH/(U)ST45 STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0115 STEP NO--UR/3663/70/000/001/0036/0041

CIRC ACCESSION NO--AP0123887
UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123887

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD OF STATISTICAL TREATMENT OF RESULTS OF FATIGUE TESTS WITH PROGRESSIVE AMPLITUDE OF LOADING IS DISCUSSED. THE METHOD IS APPRAISED IN COMPARISON WITH TESTS USING A CONSTANT AMPLITUDE. TEST RESULTS FOR PEARLITIC AND FERRITIC CAST IRONS AND SPECIAL GRADES OF STEEL ST. 45 ARE PLOTTED ON LINEAR-PROBABILITY GRAPH PAPER AND IN EACH CASE THE FATIGUE LIMITS FOLLOW A GAUSSIAN PROBABILITY DISTRISUTION.

UNCLASSIFIED

USSR

UDC 548.52:535.4

GINZBURG, V. M., GUSEVA, I. N., KRAMARENKO, V. A., SEMENOV, E. G., SONIN, A. S., and STEPANOV, B. M.

"The Use of Holographic Interferometry to Observe the State of a Solution During the Growth of Single Crystals"

Moscow, Kristallografiya, Vol 17, No 5, Sep-Oct 72, pp 1012-1014

Abstract: The article shows that holographic interferometry can be used to study the state of a solution during the growth of KH_2PO_4 single crystals. The method used is that of bringing the object into coincidence with its virtual image, in which the recorded wave front interferes with the real wave front. The method makes it possible to obtain real-time holographic interferograms for any stage of the growth process and to take photographs and motion pictures of them. The use of diffused illumination of the crystallizer makes it possible to record the interferograms from various aspects, which permits an analysis of the volumetric distribution of the refractive index of the solution and from the known relation between variations in the

USSR

GINZBURG, V. M., et al., Kristallografiya, Vol 17, No 5, Sep-Oct 72, pp 1012-1014

refractive index and the concentration, diffusion coefficient, etc. an analysis of the spatial distribution of the principal parameters of the solution.

The authors thank D. YE. TEMKIN, A. A. CHERNOV, N. N. SHEFTAL', and A. A. SHTERNBERG for discussing the results, and V. M. KIRILLOVA for her help in the experiment.

2/2

1/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--DISTRIBUTION OF GALANTHAMINE AND SECURININE IN THE ORGANS OF POISONED ANIMALS -U-

AUTHOR-(02)-MIKHNO, V.V., KRAMARENKO, V.P.

COUNTRY OF INFO--USSR

SOURCE--FARM. ZH. (KIEV) 1970, 25(1), 68-71

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DOG, ALKALOID, TOXICOLOGY, LIVER, KIDNEY, STOMACH, POISON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0143 STEP NO--UR/0491/70/025/001/0068/0071

CIRC ACCESSION NO--AP0135640

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135640

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO GROUPS OF 4 DOGS EACH WERE POISONED WITH 100 MG-KG BODY WT. OF GALANTHAMINE (I) HBR AND SECURININE (II) NITRATE. DOGS DIED 1.5-2 HR AFTER ADMINISTRATION OF THE ALKALOIDS. THE DISTRIBUTION OF I AND II WAS THEN EXAMD. IN THE INTERNAL ORGANS, BLOOD, EXCREMENTS, AND VOMITED MASS. THE ALKALOIDS WERE EXTD. WITH A H SUB2 SO SUB4 SOLN. OF PH 2.5 AND DETD. BY KNOWN PROCEDURES. THE HIGHEST LEVEL OF BOTH ALKALOIDS WAS DETECTED IN VOMITED MASS AND URINE. SMALLER AMTS. OCCURRED IN STOMACH, INTESTINE, LIVER, KIDNEYS, BRAIN, HEART, AND LUNGS. UNLIKE II, I WAS ALSO DETECTED IN BLOOD. IT IS CONCLUDED THAT FOR TOXICOL. EXAMN. THE MOST SUITABLE OBJECTS ARE VOMITED MASS, STOMACH WITH ITS CONTENTS, LIVER, KIDNEYS, AND URINARY BLADDER WITH UREA.

FACILITY: LVOV MED. INST., LVOV, USSR.

UNCLASSIFIED

USSR

UDC 669.18:621.746.58

MAGER, A. YE., RAKEVICH, S. Z., KRAMAROV, A. D., LARIONOV, V. I., SEMENOV, YU. N., and PROISKIKH, S. N., Cherepovets Metallurgical Plant, Northwestern Polytechnical Institute, and Central Scientific Research Institute of Ferrous Metallurgy

"Effect of Pouring Rate and Metal Composition on Steel Ingot Quality for Deep Drawing"

Moscow, Stal', No 10, Oct 73, pp 888-892

Abstract: Steels 08Fkp, 08Yu, and 08kp were smelted in 250-ton open-hearth furnaces and poured into molds through an 80-mm diameter opening to form 14-14.5-ton ingots. These ingots were compared with ingots made of steel 08kp(N) which had been poured into molds with a 30-mm-diameter opening. Ingots of steel 08kp(N), 08kp, and 08Fkp were covered after pouring to allow boiling periods of 15, 20 and 20 minutes respectively. By increasing the pouring rate with simultaneous use of an active boiling intensifier [not specified], a fovarable rimmed-steel ingot structure was produced. A content of 0.06% V in the steel make it possible to diminish development of segregation phenomena in rimmed steel which then makes it similar to semikilled steel. The vanadium

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USSR

MAGER, A. YE., et al., Stal', No 10, Oct 73, pp 888-892

content in the crust zone and in a ladle sample of the rimmed steel was the same and exceeded the vanadium concentration in the internal areas of the ingot. Four figures, four bibliographic references.

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UDC 669.046.5

USSR

KRAMAROV, A. D., ZAKHAROV, M. M., and GUTOVSKIY, I. B.

"Removal of Oxygen From Steel in Deoxidation by Manganese, Silicon, and Aluminum"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS). (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 22-29

Translation of Abstract: Data are presented on an investigation of the oxygen removal process from low-carbon steel in deoxidation by manganese, silicon and aluminum, separately and jointly. 6 figures, 6 references.

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K

USSR

KRAMAROV, A. D., and GOTOVSKIY, [illegible], [illegible] [illegible] Institute

"Removal of Oxygen from Solidifying [illegible]"

Novokuzn[illegible], Izv. VUZ, Chern. Metallurgiya, No [illegible], 1970, [illegible]

Abstract: A study was made of the influence of the method [illegible] degree to which oxygen is removed from [illegible] during the process [illegible]. Low-carbon steel was melted in a 60-kg induction furnace and [illegible] ladle, into which the deoxidizing agents had been placed. [illegible] melts, steel was repoured into a 60-kg cast iron mold, where [illegible] current, while in a second series of experiments it was [illegible] experiments indicated that aluminum is the strongest deoxidizing [illegible] equi[illegible] oxygen with 0.12% aluminum in the [illegible] parti[illegible] are not [illegible] by the metal and can be [illegible] steel. [illegible] content produced using [illegible] was [illegible] the equilibrium concentration with silicon [illegible], indicating [illegible] sions [illegible] removed from the metal. Combined use of [illegible] results in the separation of liquid [illegible] silicates, [illegible]
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KRAVCHOV, [illegible]
1970, pp 42-47

floating. [illegible]
inclusions or crystalline alkaline inclusions may be [illegible]
rapidly removed from the [illegible]

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USSR

UDC [537.226+537.311.33]:[537+535]

GAKH, S. G., BORODIN, V. Z., and KRAMAROV, O. P.

"Influence of High-Temperature Polarization on Pyroelectric Effect and Electrical Properties of Barium Titanate"

Elektron. tekhnika. Nauch.-tekhn. sb. Materialy (Electronic Engineering: Collection of Scientific and Technical Works on Materials), 1970, vyp. 8, pp 92-96 (from RZh-Fizika, No 10, Oct 71, Abstract No 10YB611 from summary)

Translation: The authors studied the possibilities of improving the stability of the pyroelectric properties of $BaTiO_3$ single crystals by selecting the appropriate polarization mode. Preliminary data are presented on the influence of high-temperature polarization on the magnitude and stability of the pyroelectric effect in $BaTiO_3$ single crystals.

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UDC 542.91+547.853.3

USSR

KRAMER, M. S., and AROYAN, A. A., Institute of Fine Organic Chemistry, Yerevan, Academy of Sciences Armenian SSR

"Pyrimidine Derivatives. XVI. Diethylenimides of 2,6-Dimethyl--5-(p-alkoxybenzyl)pyrimidyl-4-amidophosphoric Acids"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 3, 1970, pp 268-273

Abstract: Previous experiments by the authors on antitumorigenic activity of 2,6-dimethyl-4-oxy-5(p-alkoxybenzyl)pyrimidines showed that inhibition of sarcoma 45 growth varied from 30 to 55%, and they were ineffective against sarcoma 37 and M1 growth. In an attempt to increase the metabolic activity of the pyrimidines and find new compounds with antineoplastic properties, the author introduced the ethylamino group into the pyrimidine structure, forming the diethylenimides of 2,6-dimethyl-5-(p-alkoxybenzyl) pyrimidyl-4-amidophosphoric acids as well as 2,6-dimethyl-4-amino- and substituted amino-5-(p-alkoxybenzyl)pyrimidines. The latter compounds were synthesized by action of an excess of an ethanol solution of ammonia on 4-chloropyrimidines. The amino derivatives are in the form of white crystals obtained in 65-70% yields.

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USSR

KRAMER, M. S., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 3, 1970, pp 268-273

They are moderately soluble in ether, benzene, and chloroform. Diethylenimides of 2,6-dimethyl-5-(p-alkoxybenzyl)pyrimidyl-4-amidophosphoric acids were obtained by the action of ethylenimine on phosphorus halides in benzane solution in the presence of triethylamine. Yields are 60-65%, and the substances are crystalline, readily soluble in ethanol, chloroform, and ethylacetate, and insoluble in water, acetone, and petroleum ether. The antineoplastic properties of the compounds were not reported by the authors.

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USSR

UDC 542.91+547.853.3

AROYAN, A. A., and KRAMER, M. S., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"Pyrimidine Derivatives. XXVIII. Diethyleneimides of 4-Chloro-5-(p-alkoxybenzyl)-6-methyl-2-pyrimidylamidophosphoric Acids"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 10, 1971 pp 918-923

Abstract: The investigation described was a continuation of work by the authors (cf. Arm. Khim. Zh., 23, 268, 1970) on the synthesis of derivatives of 5-(p-alkoxybenzyl)pyrimidylamidophosphoric acids with possible antitumor and mutagenic activity. By reacting 2-amino-4-chloro-5(p-alkoxybenzyl)-6-methylpyrimidines (alkyl = Me, Et, Pr, i-Pr, Bu, i-Bu) with PCl_5, the corresponding 2-trichlorophosphazopyrimidines were synthesized, which on treatment with HCOOH yielded dichlorides of 2-pyrimidylamidophosphoric acids and upon the reaction with two moles morpholine followed by hydrolysis formed the dimorpholides of the 2-pyrimidylamidophosphoric acids. The reaction of the acid dichlorides with ethyleneimine led to the diethyleneimides of the corresponding acids. By reacting the acid dichlorides with diethylamine, bis-(beta-chloroethyl)amine, and MeOH, derivatives of the acids in which both Cl

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USSR

AROYAN, A. A., and KRAMER, M. S., Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 10, 1971, pp 918-923

atoms in the acid chloride groups were replaced with $NHEt_2$, $N(CH_2CH_2Cl)_2$, or OMe groups were obtained. The acid dichlorides that were synthesized (6 compounds) and the diethyleneimides that were prepared from them (6 compounds) are listed in tables together with their melting points.

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UDC 542.91+547.853.3

USSR

KHAZHAKYAN, L. V., KRAMER, M. S., AVOYAN, R. S., AROYAN, A. A., Institute of Analytical Organic Chemistry im. A. L. Mindzhoyan of the Armenian SSR Academy of Sciences (Yerevan)

"Pyrimidine Derivatives. XXVII. Study of the Tautomerism in Some Substituted 5-(p-alkoxybenzyl)pyrimidines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol XXIV, No 12, 1971, pp 1079-1080

Abstract: Infrared spectrascopy was used to study the structure of 5- and 6-(p-alkoxybenzyl)pyrimidines, potentially tautomeric compounds. Data are presented indicating an amino structure for 2-methyl-4-amino-5-(p-alkoxybenzyl)-6-methylpyrimidines, a keto structure for 4-hydroxypyrimidine, a diketo structure for the uracil derivatives with some amount of the hydroxy configuration along with the basic dihydroxy configuration and mercapto-hydroxy structure for 2-mercapto-4-hydroxy-5-(p-alkoxybenzyl)-6-methylpyrimidines. The presented article is only a summary of a report, the complete text is available at the All-Union Institute of Scientific and Technical Information, Registration No 3361-71, 18 August 1971.

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UDC: 542.91 + 547.853.3

USSR

KRAMER, M. S., and AROYAN, A. A., Institute of Fine Organic Chemistry, Yerevan, Academy of Sciences Armenian SSR

"Pyrimidine Derivatives. XIV. Synthesis and Reactions of 2,6-Dimethyl-4-hydroxy-5-(p-alkoxybenxyl)-pyrimidines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 1, 1970, pp 69-75

Abstract: Cyclization of equimolar quantities of p-alkoxybenzylmalonic acetic esters with acetamidine hydrochloride in the presence of sodium methoxide gives 2,6-dimethyl-4-hydroxy-5-(p-alkoxybenzyl)-pyrimidines in 65-70% yields. The hydroxypyrimidines are crystalline compounds insoluble in water and organic solvents. Heating 2,6-dimethyl-4-hydroxy-5-(p-alkoxybenzyl)-pyrimidines with excess $POCl_3$ gives 4-chloropyrimidines in 85-90% yields. Reaction of 4-chloropyrimidines with sodium methoxide in methanol replaces the chlorine atom with a methoxy group, yielding 55-60% of 2,6-dimethyl-4-methoxy-5-(p-alkoxybenzyl)-pyrimidines.

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1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--PYRIMIDINE DERIVATIVES. XIV. SYNTHESIS AND SOME REACTIONS OF 2,6,DIMETHYL,4,HYDROXY,5,(P,ALKOXYBENZYL)PYRIMIDINES -U-

AUTHOR-(02)-KRAMER, M.S., AROYAN, A.A.

K

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(1), 69-73

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PYRIMIDINE, CHEMICAL SYNTHESIS, HYDROXYL RADICAL, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0604 STEP NO--UR/0426/70/023/001/0069/0073

CIRC ACCESSION NO--AP0119521 UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119521

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.

2,6,DIMETHY,,4,HYDROXY,5,(P,ALKOXYBENZYL)PYRIMIDINES (I) WERE SYNTHESIZED FROM THE CORRESPONDING P,ALKOXYBENZYL ACETOACETATES (II) BY TREATMENT WITH ACETAMIDINE,HCL (III) IN THE PRESENCE OF MEONA. TO A COOLED SOLN. OF MEONA PREPD. FROM 4.6 G NA AND 100 ML MEOH, 9.45 G III AND 0.1 MOLE II WERE SUCCESSIVELY ADDED, AND THE MIXT. HEATED AND STIRRED ON A WATER BATH 2-3 HR TO GIVE THE FOLLOWING I (ALKYL IN THE ALKOXY GROUP, PERCENT YIELD, AND M.P. GIVEN): ME, 69.5, 168-9DEGREES; ET, 64.8, 189-90DEGREES; PR, 71.6, 155-6DEGREES; ISO-PR, 72.0, 149-50DEGREES; BU, 75.4, 165-6DEGREES; AND ISP-BU, 70.5, 145-60EGREES. TO 30 G FRESHLY DISTD. POCL SUB3, 1.58 G C SUB5 H SUB5 N AND 0.02 MOLE I WERE ADDED, AND THE MIXT. WAS HEATED ON A WATER BATH 10-12 HR TO GIVE THE FOLLOWING 2,6,DIMETHYL,4,CHLORO,5,(P, ALKOXYBENZYL)PYRIMIDINES (IV) (ALKYL IN THE ALKOXY GROUP, PERCENT YIELD, B.P.-L, MM, AND M.P. GIVEN): ME, 85.6, -, 95-6DEGREES; ET, 90.5, -, 89-90DEGREES; PR, 93.3, -, 78-9DEGREES; ISO-PR, 87.4, 184-5DEGREES, 90-2DEGREES; BU, 75.0, 190-2DEGREES, 40-1DEGREES; AND ISO-BU, 89.5, -, 110-11DEGREES. A MIXT. OF A SOLN. OF MEONA PREPD. FROM 2.3 G NA AND 30 ML MEOH AND 0.01 MOLE IV WAS HEATED ON A WATER BATH 1 HR TO GIVE THE FOLLOWING 2,6,DIMETHYL,4,METHOXY,5, (P,ALKOXYBENZYL)PYRIMIDINES (ALKYL IN THE ALKOXY GROUP, PERCENT YIELD, B.P.-L. MM, AND M.P. GIVEN): ME, 56.5, 145-7DEGREES, -; ET, 53.2, 152-5DEGREES, 51-2DEGREES; PR, 60.0, 16608DEGREES, 45-6DEGREES; ISO-PR, 62.9, 157-8DEGREES, 65-6DEGREES; BU, 57.5, 175-80DEGREES, 47-8DEGREES; AND ISO-BU 58.7, 176-8DEGREES, 42-3DEGREES. FACILITY: INST. TONKOI ORG. KHIM., EREVAN, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PYRIMIDINE DERIVATIVES. XVI. 4,P,ALKOXYPHENYL, 2,SIGMA,DIMETHYL,4,PYRIMIDINYLAMINOPHOSPHONIC DIAZIRIDIDES -U-

AUTHOR-(02)-KRAMER, M.S., AROYAN, A.A.

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(3), 268-73

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PYRIMIDINE, AMINE, ORGANIC PHOSPHORUS COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0744 STEP NO--UR/0426/70/023/003/0268/0273

CIRC ACCESSION NO--AP0136182

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136182

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MIXT. OF 0.01 MOLE 2,6,DIMETHYL,4,CHLORO,5,(P,ALKOXYBENZYL)PYRIMIDINE (I), 0.03 MOLE R SUB2 NH, AND 30 ML ETOH HEATED AT 150-60DEGREES IN AN AUTOCLAVE 5-6 HR GAVE THE FOLLOWING: SHOWN ON MICROFICHE. A MIXT. OF 0.01 MOLE I AND 30 ML ETOH CONTG. 0.85 G NH SUB3 HEATED AT 170-5DEGREES IN AN AUTOCLAVE 10-12 HR GAVE THE FOLLOWING: SHOWN ON MICROFICHE. A MIXT. OF 0.01 MOLE III AND 8-9 ML POCL SUB3 HEATED AT 130-40DEGREES 5-6 HR, EVAPD. IN VACUO, AND THOROUGHLY WASHED WITH ET SUB2 O GAVE THE CORRESPONDING IV, WHICH, WHEN TREATED WITH 2 G ETHYLENIMINE AND 5 G ET SUB3 N GAVE THE FOLLOWING: SHOWN ON MICROFICHE. FACILITY: INST. TONKOI ORG. KHIM., EREVAN, USSR.

UNCLASSIFIED

USSR UDC: 621.315.592

VEYNGER, A. I., KRAMER, N. I., ABDINOV, A. Sh., and MADAMIRZAYEV, G., A. F. Ioffe Physico-Technical Institute, Leningrad

"Benedix Effect in the High-Frequency Heating of Unbalanced Carriers in Germanium"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1354-1358

Abstract: The authors define the Benedix effect as a thermoelectromotive force arising in a uniform semiconductor when the carriers are heated by powerful microwave pulses. They performed an experiment involving this effect and reported its results in an earlier paper published in this same journal (A. I. Veynger, et al, FTP, 6, 1972, p 916). The present paper proposes a revision of the earlier experiment which permits having the temperature and concentration gradients in the same region of the semiconductor specimen. A diagram of this revised apparatus is given. A formula for the thermoelectromotive force is theoretically derived on the assumption that the temperature of the carriers is proportional to the uhf power incident on the specimen. The curves for this formula and for the experimental data as obtained with the revised

USSR

VEYNGER, A. I., et al, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1354-1358

apparatus are plotted on the same axes (the thermoemf as a function of the uhf power) and are seen to have good agreement.

2/2

Kramerov, A. YA.

UDC 621.311.2

STEAM PARAMETERS FOR ATOMIC ELECTRIC STATIONS WITH WATER COOLED REACTORS

[Article by Ya. P. Kuncin, doctor technical sciences, and A. Ya. Kramerov, candidate of technical sciences; Moscow, Teploenergetika, No 2, 1972, pp 2-4]

Water-cooled reactors for atomic electric stations predominate in the atomic-power ratings now being started and under construction, and also in the plans for large-scale power development. Yet the presently employed steam parameters in atomic electric stations with water-cooled reactors were established during the earlier stages of development of atomic power. They correspond to the requirements of the current five-year plan, but it is not excluded that for further extensive introduction these parameters may not be optimal at all.

All this points to the advisability of optimizing the parameters of the heat-power cycle of future generations of water-cooled atomic electric stations.

Atomic Electric Stations With Pressure Vessel Reactors

Single-loop atomic electric stations. The overwhelming majority of water-cooled reactors now in operation and under construction generate saturated (or only very slightly superheated) steam of approximate pressure 70 kg/cm^2.

In single-loop atomic electric stations with water-water boiling (pressure-vessel) reactors (VVER or EGP), the water pressure was firmly and rapidly established at the 70 kg/cm^2 level both for reactors installed in small experimental atomic electric stations (of the VK-50 type in the USSR, in Humboldt Bay, Big Rock Point, Valleetos in the U.S., in Japan, West Germany, etc.), as well as for large second- and third-generation atomic electric stations (Dresden-I, II, III, Garigliano, Oyster Creek, Nine Mile Point, etc.).

Published for discussion purposes.

USSR

UDC 911.3:616.981.452

IVANOV, V. A., KRAMINSKIY, V. A., and MARIN, S. N.

"Tactics of Epidemiological Examination of Natural Foci of the Plague"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of Works), Saratov, No 4(14), 1970, pp 41-44 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.108) by V. Dobrokhotov.

Translation: Epidemiological reconnaissance of the territory includes the following tasks: epizootiological and zooparasitological examination, epidemiological monitoring of the population, epidemio-geographic study of foci and observation of the disease incidence among camels so as not to transfer the disease to them. The chief problems for each one of these areas are outlined. Tactical approaches to epidemiological study are determined by characteristics of epizootic activity at different foci. In addition to this it is necessary to distinguish natural foci with stable activity (northern desert subzone) and foci with periodic activity (southern subzone).

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USSR

KRAMSKOY, G. D.; KURILKO, V. I.; SHEMDRIK, V.A. (Physicotechnical Institute of the Ukrainian Academy of Sciences, Khar'kov)

"Theory of Lateral Instability of a Beam in the Resonator Section of a Linear Electron Accelerator"

Kiev, Ukrainskiy Fizicheskiy Zhurnal; October, 1972; pp 1608-16

ABSTRACT: The authors develop a theory of the lateral instability of a relativistic electron beam caused by the effect of a build-up, in the resonator section of an accelerator, of a spontaneous Cerenkov radiation of beam clusters on a defocussing, axially unsymmetric wave. A problem concerning deviation of the beam when acted upon by the wave is solved by a self-consistent approximation. Analytic expressions are found which determine the dependence of a lateral shift of a cluster on its number, the parameters of the accelerator (geometry, quality factor, intensity of the accelerating field), energy, and beam current. It is shown that in the case of the resonator section a build-up of lateral instability has a threshold character: when the beam current exceeds some threshold value, the lateral displacement of the beam increases exponentially with time. The analytic variations of the threshold currents with the parameters of the accelerator, injection energy, and intensity of the accelerating field are found.

The theoretical results agree satisfactorily with the experimental data.

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- END -

USSR

UDC 621.372.855(088.8)

KRAMSKOY, G. D., ZYKOV, A. I.

"Microwave Load"

USSR Author's Certificate No 253193, Filed 17 Jan 68, Published 1 Sep 70, (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4B188P)

Translation: The proposed load is executed from a septate wave guide with ring diaphragms made of carbon steel.

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USSR UDC 621.372.8

KRAMSKOY, G. D., ZYKOV, A. I., GRISHAYEV, I. A., and KOLOT, E. M.

"Dispersion Properties of a Circular Diaphragm Waveguide With Radial Cuts of the Diaphragms ($\pi/2$ Type Oscillations)"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 51, No 3, Mar 71, pp 567-571

Abstract: The effect of the length of radial cross-shaped and right-angle (two cuts at an angle of 90°) cuts in a diaphragm with a slit width of 0.4 mm on the dispersion characteristics of E_{01}, EH_{11}, EH_{12}, HH_{21}, and E_{02} waves was investigated. The purpose of the study was to select versions and types of radial cuts which would shorten as much as possible the number of repetitions of segments with the same geometry in different sections of a multisection accelerator; i.e., to spread the frequencies of hybrid waves which can be excited by the beam in these sections. Measurements show that the reason for the effective rise in the critical current of the accelerating sections when radial cuts of the diaphragms are applied is the considerable lowering of the Q of the system for high defocusing EH waves as compared with a waveguide without cuts. The data on Q and the frequencies of the synchronous interaction of the beam with higher types of oscillations are

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USSR

KRAMSKOY, G. D., et al, Zhurnal Tekhnicheskoy Fiziki, Vol 51, No 3, Mar 71, pp 567-571

used to determine approximately the critical current of a waveguide with a given geometry.

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USSR UDC 681.332.65

KRAMSKOY, V. V., PASHKO, D. I., STEPANOV, A. Ye., Institute of Cybernetics, Academy of Sciences, Ukrainian SSR

"Device for Solution of Differential Equations"

USSR Author's Certificate Number 323782, 23 March 1970, Opkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 1, January (a) 1972, pp 190-191

Translation: The authors present a device for solution of partial differential equations containing a one-dimensional block of capacitor memories, divided into groups, which are connected, by means of switches activated by the control device, to feedback circuits of dc amplifiers, a switching matrix, conductors simulating the coefficients of the finite-difference operator, and sources of current to simulate the right side of the equation and boundary conditions. It has the special feature that, in order to expand the range of problems solved, it contains a multidimensional block of capacitor memories connected through switches in parallel with the dc amplifiers, the inputs of the amplifiers being connected through other switches to the outputs of the dc amplifiers of the one-dimensional block of capacitors, and also through the switching matrix to the code-controlled conductors to simulate the coefficients with the derivatives in their spatial coordinates and time, a

USSR

KRAMSKOY, V. V., et al., USSR Author's Certificate Number 323782, 23 March 1970, Opkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 1, January (a) 1972, pp 190-191

code-controlled current supply to simulate the right side of the equation and boundary conditions, and also an additional direct current amplifier to realize negative coefficients of the finite-difference operator.

2/2

USSR

UDC 321.374.34

KRAMUSHCHENKO, V. I., NOVOSEL'TSEV, L. Ya., SMIRNOV, V. N., Leningrad Order of Lenin Electrotechnical Institute imeni V. I. Ul'yanov (Lenin)

"Binary Time-Amplitude Quantizer"

USSR Author's Certificate No 304683, filed 9 February 1970, published 24 May 1971 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 17, 1971, No H 03k 5/153)

Translation: A binary time-amplitude quantizer of signals from a pulse radar containing a series connected threshold device, a comparison circuit and two standard pulse shaping triggers is introduced. It is distinguished by the fact that in order to exclude the formation of standard pulses in adjacent intervals of the quantizer from one excess pulse, between the output of the threshold device and one of the inputs of the comparison circuit an auxiliary trigger is connected via an inverter. The auxiliary trigger is connected by its second input to the output of the first standard pulse shaping trigger.

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USSR

UDC: 621.396.96:681.32

ALEKHIN, V. A., KAZARINOV, Yu. M., KRAMUSHCHENKO, V. I., NOVOSEL'TSEV, L. Ya., SMIRNOV, V. N.

"On Designing Devices for Primary Processing of Radar Information"

Izv. Leningr. elektrotekhn. in-ta (News of Leningrad Electrical Engineering Institute), 1972, vyp. 102, pp 18-25 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12G18 [résumé])

Translation: The paper deals with selecting an algorithm for primary processing of a scanning radar signal and modifications of organizing the memory of the [corresponding] device. It is shown that it is advisable to use weighted summation of quantized signals for short pulse trains, and balanced summation for long ones. It is suggested that the memory module be made in the form of parallel-operating "long" shift registers. In the case of a large number of accumulated pulses, it is recommended that the required memory volume be reduced by making the device in accordance with the principle of a multichannel queuing system. Three illustrations, bibliography of five titles.

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1/2 022 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--OVERSHOOTS OF THE ENVELOPE FOR THE SUM OF A STATIONARY NORMAL NOISE AND A RANDOM AMPLITUDE SIGNAL -U-

AUTHOR--KRAMUSHCHENKO, V.I.

COUNTRY OF INFO--USSR

SOURCE--KIEV, IZVESTIYA VUZOV SSSR RADIOELEKTRONIKA, VOL 13, NO 2, 1970, PP 260-267

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION, PHYSICS

TOPIC TAGS--RANDOM NOISE SIGNAL, RADAR RECEIVER, PULSE AMPLITUDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/1454 STEP NO--UR/0452/70/013/002/0260/0267

CIRC ACCESSION NO--AP0110945

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--090CT70

CIRC ACCESSION NO--AP0110945

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EXPRESSION IS FOUND IN THIS ARTICLE FOR THE AVERAGE NUMBER OF OVERSHOOTS OF THE ENVELOPE FOR THE SUM OF STATIONARY NORMAL NOISE AND A PULSED RADIO SIGNAL WITH NONCORRELATED RANDOM AMPLITUDE AND INITIAL PHASE. SUCH PROCESSES OCCUR AT THE OUTPUT OF A RADAR RECEIVER, FOR EXAMPLE, WHICH ACCEPTS SIGNALS REFLECTED FROM A TARGET WITH A RANDOM EFFECTIVE DISPERSION AREA. TO OBTAIN A COMBINED DISTRIBUTION OF THE ENVELOPE AND ITS DERIVATIVE AT COINCIDENT MOMENTS OF TIME, USE IS MADE OF A METHOD GIVEN IN AN EARLIER WORK FOR FINDING THIS DISTRIBUTION THROUGH THE COMBINED DISTRIBUTION OF THE PROCESSES AND THEIR DERIVATIVES, THE LATTER BEING NORMAL RANDOM PROCESSES WITH ZERO AVERAGE VALUE. AN EXPRESSION IS FOUND FOR THE AVERAGE DENSITY OF POSITIVE AND NEGATIVE OVERSHOOTS. THE AVERAGE DENSITY OF THE POSITIVE AND NEGATIVE OVERSHOOTS DEPENDS TO A LARGE EXTENT ON THE SIGNAL TO NOISE RATIO AND ON THE DERIVATIVE. THE DIFFERENCE IN DENSITY OF THE POSITIVE AND NEGATIVE OVERSHOOTS IS EQUAL TO THE DERIVATIVE WITH RESPECT TO TIME OF THE PROBABILITY OF THE RANDOM PROCESS EXCEEDING THE LIMITING LEVEL.

UNCLASSIFIED

Radar

USSR

UDC 621.391.8

KRAMUSHCHENKO, V. I.

"Overshoots of the Envelope for the Sum of a Stationary Normal Noise and a Random Amplitude Signal"

Kiev, Izvestiya VUZov SSSR-Radioelektronika, Vol 13, No 2, 1970, pp 260-267

Abstract: An expression is found in this article for the average number of overshoots of the envelope for the sum of stationary normal noise and a pulsed radio signal with noncorrelated random amplitude and initial phase. Such processes occur at the output of a radar receiver, for example, which accepts signals reflected from a target with a random effective dispersion area. To obtain a combined distribution of the envelope and its derivative at coincident moments of time, use is made of a method given in an earlier work for finding this distribution through the combined distribution of the processes and their derivatives, the latter being normal random processes with zero average value. An expression is found for the average density of positive and negative overshoots. The average density of the positive and negative overshoots depends to a large extent on the signal to noise ratio and on the

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KRAMUSHCHENKO, V. I., Izvestiya VUZov SSSR-Radioelektronika, Vol 13, No 2, 1970, pp 260-267

derivative. The difference in density of the positive and negative overshoots is equal to the derivative with respect to time of the probability of the random process exceeding the limiting level.

USSR

UDC 616.981.551-092.9-07:616.24-005-072.7

KRYZHANOVSKIY, G. N., YESIPOVA, I. K., and KRANCHEV, A. K., Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Changes in the Microcirculation of the Lungs in Experimental Tetanus"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 1, 1973, pp 78-83

Abstract: At the height of tetanus, ascending or hematogenic, induced in rats by intramuscular or intravenous injection of lethal doses of the toxin, light microscopy revealed the following changes in pulmonary tissue: marked dilatation of the alveolar capillaries with numerous erythrocytes and indications of diapedetic bleeding; hemorrhages into the lumens of the bronchi; dilatation of the lumens of the lymphatics; contraction of the smooth muscles of the small veins; foci of atelectasis alternating with foci of ectasia. Electron microscopy revealed the following in the lungs of infected mice: alteration of the ultrastructure of the alveolar capillaries and formed blood elements; local destruction of the external cytoplasmatic membranes of endothelial and small alveolar cells, erythrocytes, leukocytes, and thrombocytes; formation and disintegration of vesicles on the surface of the endothelial cells; both vacuolation of erythrocytes and their gradual or instantaneous disintegration

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KRYZHANOVSKIY, G. N., et al., Byulleten' Eksperimental'noy Biologii i Meditsiny, No 1, 1973, pp 78-83

into spherical fragments in the lumens of the capillaries. No signs of inflammation were noted except in two animals successfully treated with tetanus antitoxin and later sacrificed (both showed symptoms of serous-hemorrhagic pneumonia and bronchitis).

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172 020 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INTERACTION IN THE SILVER, THALLIUM AND TELLURIUM SYSTEM STUDIED FROM THE THALLIUM TELLURIDE AND SILVER TELLURIDE SECTION -U-

AUTHOR-(04)-KOVALEVA, I.S., KRANCHEVICH, K.S., SEMENTSOVA, R.S., NIKOLSKAYA, G.F.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 247-51

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHASE DIAGRAM, SILVER, THALLIUM, TELLURIUM, HARDNESS, X RAY ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0558 STEP NO--UR/0363/70/006/002/0247/0251

CIRC ACCESSION NO--AP0105543

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105543

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHASE DIAGRAM OF THE TL SUB2 TE SUB3 MINUS AG SUB2 TE SECTION WAS PLOTTED FROM THE RESULTS OF DTA, MICROSTRUCTURAL, X RAY PHASE, AND MICROHARDNESS DATA OF COMPNS. OF THE TERNARY AG-TL-TE SYSTEM. THE SECTION STUDIED IS NOT QUASIBINARY.

UNCLASSIFIED 89

USSR

UDC 681.32.001

UMOV, V. S., NOVOKOVSKIY, Ye. M., FILATOV, A. G., and KRAVKOV, Ye. S.

"A Connector for a Printed-Circuit Board"

USSR Author's Certificate No 294269, filed 17 Apr 69, published 17 Mar 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B147 P)

Translation: The invention pertains to inspection facilities, specifically to devices for checking disconnected circuits on solid-state circuit boards. There are well-known devices designed for inspection of the output contacts of circuit boards which are made in the form of metal strips arranged in a parallel row with a definite spacing about the perimeter of the board. However, such devices are cumbersome and do not allow contact with the working areas of the solid-state circuit which are located on the flat surface of the board. The purpose of this invention is to improve the operational reliability of the connector for printed-circuit boards. To this end, the contact-holders in the proposed connector are made in the form of L-shaped strips fastened on round pins, and the housing has openings which accommodate the contact elements made in the form of multiple-leaf springs. Two illustrations.
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USSR

UDC: 621.3.049.75

UMOV, V. S., NOVOKOVSKIY, Ye. M., FILATOV, A. G., KRANKOV, Ye. S.

"A Connector for a Printed Circuit Board"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 6, Feb 71, Author's Certificate No 294269, Division H, filed 17 Apr 69, published 26 Jan 71, p 180

Translation: This Author's Certificate introduces a connector for a printed circuit board. The device contains a dielectric housing which accommodates contact holders with contacts between which the printed circuit board is inserted. As a distinguishing feature of the patent, the operational reliability of the connector is improved by making the contact holders in the form of L-shaped strips fastened to circular pins and fitting the housing with apertures which hold the contact elements made in the form of multiple-leaf springs.

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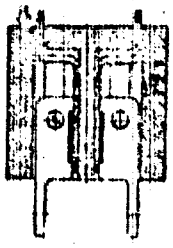
UMOV, V. S. et al., USSR Author's Certificate No 294269



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USSR

UDC 621.397.3

KRANTS, A. B., MIRONOV, V. M., YAROSH, K. S., Leningrad Institute of Aviation Instrument Building

"A Device for Forming Symbols on the Screen of a Cathode Ray Tube"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5, Feb 72, Author's Certificate No 327581, division H, filed 4 Feb 70, published 26 Feb 72, p 164

Translation: This Author's Certificate introduces a device for forming symbols on the screen of a cathode ray tube. The device contains an input angle-of-turn register, an output symbol-size register, a ferrite matrix, decoders, pulse amplifiers, a cadence pulse generator, coordinate counters and inverters. The output of the angle-of-turn register is connected to a sine function converter and to a cosine functional converter, and the inverters are connected to the horizontal and vertical deflecting plates of the cathode ray tube. As a distinguishing feature of the patent, provision is made for determining the instantaneous parameters of the symbols. Multiplication modules are connected in parallel to the output of the symbol-size register. The outputs of the sine functional converter and

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KRANTS, A. B., et al., USSR Author's Certificate No 327551

the cosine functional converter are connected respectively to the second input of the multiplication modules. The voltage from the output of the multiplication module is fed simultaneously through a voltage divider to the vertical deflecting plates of the cathode ray tube and the inverter, and through parallel-connected auxiliary multiplication modules to auxiliary voltage dividers. The voltage from the coordinate counters is fed to the second inputs of the auxiliary multiplication modules, and the voltage from the output of the auxiliary voltage dividers is fed to the horizontal and vertical plates of the cathode ray tube.

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USSR

UDC 612.8.015.33:612.8.014.41

MEYERSON, F. Z., KRANES, D., and SADYKALIYEV, T. S., Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Dynamics of Protein Synthesis in Rat Brain Neurons and Glial Cells During Adaptation to High-Altitude Hypoxia"

Leningrad, Tsitologiya, No 3, 1973, pp 324-329

Abstract: Protein synthesis was studied by the autoradiographic method in pyramidal and glial cells of the cerebral cortex and in neurons and glial cells of the supraoptic nucleus of the hypothalamus in rats exposed to intermittent hypoxia (6 hours a day in a pressure chamber) and continuous hypoxia (at an altitude of 3200 m in the Tyan Shan mountains). Adaptation to intermittent hypoxia produced essentially the same changes in protein synthesis as did adaptation to continuous hypoxia. In both cases, protein synthesis gradually increased in the cortical and hypothalamic nuclei while the cells and nuclei enlarged. In the glial cells, however, protein synthesis intensified more rapidly, reaching a peak in the initial stage of adaptation, but the cell nuclei shrank rather than enlarged. The article concludes with a discussion of the possible mechanism of the stimulation of protein synthesis by hypoxia and suggests possible reasons for the opposite changes in the size of the neurons and glial cells.

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USSR

UDC 591.481.1:591.543

MEYERSON, F. Z., KRANTS, D., SADYRALIYEV, T. S., and AYNOKENOVA, R. R.,
Institute of Normal and Patholcgical Physiology, Academy of Medical Sciences
USSR, Moscow

"Dynamics of Protein Synthesis in the Neurons and Glia of the Brain for Adaptation to High-Altitude Hypoxia"

Moscow, Doklady Akademii Nauk SSR, Vol 204, No 3, 1972, pp 759-762

Abstract: Adaptation is accompanied by acceleration of the development and an increase in the degree of retention of conditioned reflexes, an increase in the resistance of memory to electroshock and also an increase in the resistance of animals to sound stimulation causing convulsions. For correct evaluation of these facts it is necessary to discover in which cellular structures of the brain the above-described synthesis activation is realized since this permits an approach to the understanding of its specific role in the variations of the brain functions which are actually observed on adaptation to high-altitude hypoxia. Accordingly, an autoradiographic method was used to study the dynamics of protein synthesis in the gigantic pyramidal neurons and glial cells of the cerebral cortex and also in the neurons and glial cells of the supraoptical nucleus of the hypothalamus on adaptation to continuous and discontinuous

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MEYERSON, F. Z., et al., Doklady Akademii Nauk SSR, Vol 204, No 3, 1972, pp 759-762

hypoxia. The experiments were performed on male Wistar rats weighing 140-160 grams. The data curves presented indicate that both in the cerebral cortex and in the supraoptical nucleus of the hypothalamus adaptation to continuous hypoxia is accompanied by theoretically the same changes in intensity of the protein synthesis as adaptation to discontinuous hypoxia. In both cases, gradually progressive activation of protein synthesis is observed in the cortical and hypothalamic neurons with a simultaneous increase in the size of the cells. In the glial cells the synthesis activation increases more steeply. It is greatest in the initial period of adaptation and is accompanied not by an increase but by a decrease in the size of the cell nuclei. Just as for adaptation to discontinuous hypoxia, the activation of the synthesis and an increase in the neuron size were more pronounced for the cortex than for the hypothalamus.

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USSR

UDC: 621.373.531(088.8)

GOLUBCHIK, Yu. Ya., KRANTS, V. Z.

"A Video Pulse Shaper"

USSR Author's Certificate No 266827, filed 7 Oct 68, published 18 Aug 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1Q212 P)

Translation: This Author's Certificate introduces a video pulse shaper which contains two frequency dividers. The input of one of these dividers is connected directly to the output of a stabilized reference frequency oscillator, while the input of the other divider is connected to the same point through a switching device. The pulse shaper also contains a commutating device. To improve the stability of time parameters of a video pulse train in the case of long pulse durations and repetition periods, the outputs of the frequency dividers are connected to the inputs of a flip-flop whose output is connected to the input of a switching transistor.

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USSR

UDC: 51.6

KRAPCHIN, A. I.

"A Method of Simplifying the Formula for a Boolean Function of a Large Number of Variables Given in Disjunctive Normal Form"

Tr. In-t elektron. upravl. mashin (Works of the Institute of Control Computers), 1970, vyp. 10, pp 43-55 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V668)

[No abstract]

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USSR

UDC 621.385.032.11:621.385.019.3

KRAPINA, M.A., SYTILIN, N.S., GOLUBEV, A.I.

"Partial Pressures Of Residual Gases In Long-Life TWTs"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 9, pp 105-109 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1A94)

Translation: The spectrum was investigated of the residual gases in experimental electrovacuum devices (based on a traveling-wave tube) with a titanium nonpulverized getter, and without it. Pumping was conducted by mechanical forevacuum and highvacuum electrical discharge pumps. The spectrum of the residual gases was investigated on a IPDO-1 device with three regimes of the tube: in a cold state, with working voltage of the heater, and in a regime of current transmission at the collector. The basic components of the ambient gases in tubes with a getter were H_2 and Ag. The pressure of Ag with current selection was substantially decreased and the pressure of H_2 remained stable in all operating conditions. The total pressure of the residual gases in tubes in a cold state is $2 \cdot 10^{-8}$ mm mercury, and in a regime of current selection is $8 \cdot 10^{-9}$ mm mercury. Without a getter, the pressure was primarily determined by argon and amounted to

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USSR

KRAPINA, M. A., et al., Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh, 1970, Issue 9, pp 105-109 (from RZh--Elektronika i yeye primeneniye, No 1, Jan 1971, Abstract No 1A94)

$2.5 \cdot 10^{-8}$ mm mercury (in a cold state), and the pressure of CO amounted to $5 \cdot 10^{-9}$ mm mercury. With switching on of the tube heater the CO pressured increased to $5 \cdot 10^{-8}$ mm mercury. In passing to operating conditions the partial pressure of Ar was sharply decreased ($\sim$ 1/10) and the pressure of H_2 was increased from $3 \cdot 10^{-10}$ mm of mercury to $10^{-8} \div 10^{-7}$ mm or mercury. In TWT without built-in pumps and getters, a pressure of $2 \cdot 10^{-8}$ mm of mercury was maintained because of the aperture in cathode which makes it possible to conduct more effective pumping of the gases. On the basis of the results of the tests of the long life of such tubes the conclusion is made that the atmosphere of residual gases, the basic components of which are H_2 ($2. 10^{-8}$ mm mercury), CO ($5 \cdot 10^{-9}$) and Ar ($5. 10^{-9}$) are favorable for TWT operation during many thousands of hours. 5 ill. 5 ref. G.B.

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USSR

FLEYSHMAN, B. S., KRAPIVIN, V. F., MAKMAK, S. M.

"Trinary Games"

Mat. Analiz i Ego Pril. [Mathematical Analysis and its Applications -- Collection of Works], Vol 4, Rostov-na-Donu, Rostov University Press, 1972, pp 121-129 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V496, by the authors).

Translation: An analytic solution is presented for an antagonistic game, the win function of which M(x, y) takes on three values. In the first problem, the case of a symmetrical matrix game measuring 2 x 2 is studied. In the second problem, the solution is presented to a continuous game in an m-dimensional unit cube for certain particular cases.

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USSR

UDC 591.55

KRAPIVIN, V. F., Institute of Radiotechnology and Electronics, Academy of Sciences USSR

"Studies on a Generalized Mathematical Model for the Predator-Prey System" Sverdlovsk, Ekologiya, No 3, 1972, pp 28-37

Abstract: A mathematical description of an ecosystem is difficult to formulate because of the great variability and relatively little factual data that is available on trophic relationships. On the basis of Ivlev's concurrence theory, a generalized mathematical model was derived for an ecosystem with three trophic levels. A predator-prey model was designed in which the first population could prey on the second population and the latter on a third population, but the first could not utilize the third for trophic purposes. Ivlev's formula was expanded to consider the probability of interaction between individuals of two of the populations in a given period of time, and it was assumed that the frequency of such encounters follows Poisson's distribution. Interaction with other populations in this ecosystem was included in factors of death and multiplication, and it was assumed that there was no complete annihilation of one trophic level by another. The derivations were applied to a study of literature data dealing with zooplankton and phytoplankton populations and showed in this case that the lifetime of an ecosystem is dependent on the type of predator and duration of contact between the populations. The

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KRAPIVIN, V. F., Ekologiya, No 3, 1972, pp 28-37

model could be generalized even further by considering cyclic patterns in the development of individuals in a population, seasonal changes, etc., if available and would not introduce additional mathematical difficulties.

USSR

UDC 51:155.001.57:612.82

KRAPIVIN, V. F.

"Estimates of Viability of Complex Systems"

Vopr. Konkretn. Sistemn. Issled., [Problems of Specific Systems Investigations--Collection of Works], Moscow, 1970, pp 6-14, [Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V691, unsigned].

Translation: The viability of a complex system refers to its property of retaining the ability to perform its functions when damaged by the external medium. The problem is stated of estimating the viability of a system depending on the nature of this damage. This work presents a formulation of the general problem of optimizing the structure and behavior of a complex system in the sense of increasing its viability. The approach presented here was first suggested by B. S. Fleyshman and later developed.

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1/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--SPACE CHARGE LIMITED CURRENTS IN A METAL FERROELECTRIC AND METAL SYSTEM -U-
AUTHOR-(02)-CHENSKIY, YE.V., KRAPIVIN, V.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 597-604

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ELECTRIC FIELD, SPACE CHARGE, FERROELECTRIC MATERIAL, CRYSTAL, FERROMAGNETIC DOMAIN, MAGNETIC POLARIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0139 STEP NO--UR/0181/70/012/002/0597/0604

CIRC ACCESSION NO--AP0054935
UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054935

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS CONSIDERED OF THE CONTACT FIELD ON THE DISTRIBUTION OF SPONTANEOUS POLARIZATION, ELEC. FIELD, AND THE D. OF FREE CHARGE IN A SHORTED CONDENSER OF THE METAL FERROELEC. METAL TYPE. FOR SOME PROPERTIES OF THE CONTACTS, QUAL. NEW DISTRIBUTION OF SPONTANEOUS POLARIZATION TAKES PLACE ("BRANCH DOMAIN"); TOTAL CHARGE OF THE FERROELEC. INCREASES AS WELL AS COND. OF THE SYSTEM.). CURRENT VOLTAGE CHARACTERISTICS OF SUCH SYSTEM HAVE PECULIARITIES RELATED TO POLARIZATION OF THE FERROELEC. CRYSTAL WITH THE APPEARANCE AND DISAPPEARANCE OF THE ABOVE DOMAIN UNDER THE ACTION OF AN EXTERNAL ELEC. FIELD.

UNCLASSIFIED

USSR

UDC: 51:330.115

KRAPIVIN, V. P.

"State of the Theory of Complex Systems in Situations of Conflict"

V sb. Nauch. i prakt. probl. bol'shikh sistem. Sekts. Bol'shiye sistemy. Teoriya, metodol., modelir. (Scientific and Practical Problems of Large Systems--collection of works. Large Systems Section. Theory, Methodology, Modeling), Moscow, "Nauka", 1971, pp 236-248 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V864)

Translation: The paper deals with problems of applications of the theory of games to investigation of the behavior of complex systems in situations of conflict. A brief survey is given of mathematical methods of analyzing game situations. Bibliography of 15 titles. Author's abstract.

1/2 015 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ANTISEPTIC FOR RAPID SATURATION OF WOOD -U-

AUTHOR-(03)-GORSHIN, S.N., KRAPIVINA, I.G., ALIYEV, A.M.

COUNTRY OF INFO--USSR

SOURCE--USSR 263,851
REFERENCE--OTKRYTYYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHEMICAL PATENT, FUNGICIDE, CHLORINATED ORGANIC COMPOUND, PHENOL, WOOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1590 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0135231

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0135231
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE ANTISEPTIC, HAVING INCREASED PROTECTIVE PROPERTIES, HAS THE FOLLOWING COMPN. (IN WT.PERCENT). PENTACHLOROPHENOL 3-5, GREEN OIL 14-22, AND LIGHT PETROLEUM PRODUCTS (E.G. WHITE ALC., LIGOINE KEROSINE FRACTIONS ACCORDING TO THE ALL UNION STATE STANDARD 10227-62, OR LIGROINE) 73-83.

UNCLASSIFIED

USSR

UDC 621.318.2:621.385.632

RABODZEY, A.G., KRAPIVINA, L.A.

"Magnets Of Platinum-Cobalt Alloy For Periodic Focusing Systems Of TWT"

Elektron.tekhnika. Nauch.-tekhn.sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1971, Issue 7, pp 77-85 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11A162)

Translation: The manufacturing processes are described for platinum-cobalt alloy magnets intended for the magnetic periodic focusing systems of traveling-wave tubes. After heating to 80 and 150° C, the irreversible reduction of the induction of these magnets from the values of the demagnetization factor and from the magnetic properties of the magnets is investigated. The magnetic properties are determined of platinum-cobalt alloy magnets intended for magnetic periodic focusing systems operating at temperatures to 140° C; the residual induction is 5800--6300 gauss of coercive force with respect to an induction of 4400--5000 oersted.

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USSR UDC 613.7:613.6

KRAPIVINTSEVA, S. I.

Aktivnyy Otdykh v Rabochem Protsesse (Active Rest in the Working Process), Moscow, "Meditsina," 1971, 188 pp

Translation: Annotation: This monograph is the first attempt to generalize scattered material from the research of many authors on the problem of activating work capacity and speeding up its restoration.

Results are presented from a study of change in the dynamics of the effect of activating rest and determining the dependence of various phases of this effect on the degree of fatigue during the person's basic activity and during additional activity -- exercises which activate rest. All this has made it possible to recommend the most expedient forms for activating rest in practice. Forms of switching muscle activity which foster an acceleration in restoration of work capacity have been analyzed and new conditions discovered under which the effect of switching does not manifest itself. New experimental proofs are presented in favor of a relationship between the Sechenov phenomenon and the effect of active rest under conditions of natural human activity. The most characteristic features of positive effect from active rest have been formulated. The basic conceptions of the mechanism of active

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KRAPIVINTSEVA, S. I., Aktivnyy Otdykh v Rabochem Protsesse, Moscow, "Meditsina," 1971, 188 pp

rest are considered and their connection with development of the dominant process is substantiated.

Experience in introducing production exercises into practice has been generalized. The beneficial effect of introductory exercises during various forms of activity is demonstrated. The immediate and remote effect of the physical training break is established for differentiated forms of labor -- during mental activity and on the production line.

Active rest is considered to be one of the important mechanisms, developed by human beings during the course of evolution for maintaining high work capacity of the organism.

The book is of definite interest to physiologists, doctors, and students at higher medical educational institutions.

Table of Contents:

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KRAPIVINTSEVA, S. I., Aktivnyy Otdykh v Rabochem Protsesse, Moscow, "Meditsina," 1971, 188 pp

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KRAPIVINTSEVA, S. I., Aktivnyy Otdykh v Rabochem Protsesse, Moscow, "Meditsina," 1971, 188 pp

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KRAPIVINTSEVA, S. I., Aktivnyy Otdykh v Rabochem Protsesse, Moscow, "Meditsina," 1971, 188 pp

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USSR

KRAPIVINTSEVA, S. I., Aktivnyy Otdykh v Rabochem Protsesse, Moscow, "Meditsina," 1971, 188 pp

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1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CONCENTRATION AND DETERMINATION OF TRACES OF COBALT IN NICKEL SALTS BY FILM POLAROGRAPHY -U-

AUTHOR-(02)-KRAPIVKINA, T.A., BRAYNINA, KH.Z.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, (3), 263-265

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, CHEMISTRY

TOPIC TAGS--CHEMICAL ANALYSIS, COBALT, NICKEL COMPOUND, INORGANIC SALT, THIOCYANATE, PHOTOGRAPHIC FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0905 STEP NO--UR/0032/70/036/003/0263/0265

CIRC ACCESSION NO--AP0131491

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0131491

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METHODS OF CONCENTRATING TRACES OF CO FOUND IN NI SALTS AND DETERMINING THESE BY FILM POLAROGRAPHY ARE DESCRIBED. THE FILM POLAROGRAPHY TECHNIQUE FACILITATES THE DETERMINATION OF QUANTITIES DOWN TO 10 PRIME NEGATIVE4 PERCENT. BYINCORPORATING PRELIMINARY EXTRACTION WITH DIANTIPYRYL METHANE AND PRESENTING THE CO IN THE FORM OF A THIOCYANATE COMPLEX, THE SENSITIVITY OF THE METHOD MAY BE INCREASED BY A FURTHER ORDER OF MAGNITUDE.

UNCLASSIFIED

USSR

UDC 547.591.623:547.853.7'854.2/8:547.963.32

SVERDLOV, YE. D., KRAPIVKO, A. P., BUDOVSKIY, E. I., Institute of the Chemistry of Natural Compounds, Academy of Sciences USSR, Moscow

"Tautomeric Equilibrium of 1-β-D-Ribofuranosyl-2-keto-4-(N-methoxyamino)-pyrimidine"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 9, Sep 71, pp 1264-1267

Abstract: The authors studied the tautomeric equilibrium of 1-β-D-ribofuranosyl-2-keto-4-(N-methoxyamino)pyrimidine. Determination of the tautomeric equilibrium constants of the compound was based on the comparison of ionization constants of fixed tautomeric forms, viz. 1-β-D-ribofuranosyl-2-keto-3-methyl-4-(N-methoxyamino)pyrimidine and 1-β-D-ribofuranosyl-2-keto-4-(N-methyl-N-methoxyamino)pyrimidine. The pK_m values of these compounds, determined spectrophotometrically, indicate that tautomeric equilibrium between the oxime and hydroxyamine forms of 1-β-D-ribofuranosyl-2-keto-4-(N-methoxyamino)pyrimidine in aqueous solutions is shifted towards the oxime form ($K_T \simeq 25$).

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1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--MELTING NICKEL ALLOYS IN VACUUM MELTING FURANCES -U-

AUTHOR-(02)-KHUDOZHNIK, O.A., KRAPIVNER, L.L.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(1), 71-3

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--NICKEL ALLOY, ALLOY MELTING, VACUUM FURNACE, REFRACTORY MATERIAL, GAS ANALYSIS, METAL CONTAINING GAS, METAL DEOXIDATION, CARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VACUUM MELTING INDUCTION FURNACES OF CONTINUOUS OPERATION AND OF THE EDWARDS HIGH VACUUM TYPE WERE USED FOR THE PREPN. OF BILLETS FROM NI ALLOYS CONTG. MG 0.04-0.1 AND W 2.5-3.5PERCENT. THE CHARACTERISTICS AND THE FUNDAMENTAL PARTS OF THE FURNACE ARE DESCRIBED. THE MELTING CHAMBER IS A CYLINDER MADE OF C STEEL 2000 MM IN DIAM. AND 2740 MM IN HEIGHT: ITS VOL. IS SIMILAR TO 11.5 M PRIME3. THE FURNACE HAS 2 INDEPENDENT VACUUM SYSTEMS. THE CRUCIBLES WERE MADE FROM REFRACTORIES TERMAKS B-3, TERMAKS MG-10, AND TERMAKS FUMAGAL 313A. RESULTS OF THE NI ALLOY MELTING SHOW THAT THE 1ST MELTINGS IN THE NEW CRUCIBLE CONTAIN A SLIGHTLY INCREASED AMT. OF SI, WHICH IS EXPLAINED BY THE FACT THAT C NOT ONLY DEOXIDIZES NI, BUT ALSO REDUCES SI FROM THE SIO SUB2 OF THE CRUCIBLES. IN NI DEOXIDIZED BY MG THERE IS A LARGER AMT. OF NONMETALLIC INCLUSIONS IN THE FORM OF MGO AS COMPARED TO THE NI DEOXIDIZED BY C. RODS OF NI ALLOYS PROCESSED BY SAID VACUUM MELTING CONTAINED H SMALLER THAN 0.0002, O SMALLER THAN 0.0005, AND N SMALLER THAN 0.001PERCENT. THE MEAL PRODUCED BY SAID VACUUM MELTING IS ACCORDING TO CHEM. COMPN., GAS CONTENT, MECH. PROPERTIES, STRUCTURE, D., AND TECH. PROPERTIES, PRACTICALLY ON THE SAME LEVEL WITH ANALOGOUS METAL OF VACUUM MELTING PREPD. PREVIOUSLY IN OKB-5718 FURNACES.

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